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Reliability and validity evidence for the Self-Directed Learning Scale (SDLS)

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ABSTRACT

This study investigated the psychometric properties of the Self-Directed Learning Scale (SDLS) based on 1760 undergraduate students in Hong Kong. The psychometric evaluation included: (i) factor structure; (ii) internal consistency; (iii) criterion validity and (iv) convergent validity of the scale. While Confirmatory Factor Analysis (CFA) confirmed the uni-dimensionality of the scale, a multi-group CFA supported the structure as invariant across genders. Besides, the Cronbach's alpha result showed that the scale was internally consistent. Moreover, its criterion validity was evidenced by its correlations with the university and public examination results (i.e., GPA, HKALE and HKDSE), students' self-evaluation of social, cognitive and self-growth outcomes as well as their satisfaction of the university experience. The study also extended the nomothetic span of self-directed learning by establishing its relationship with emotional intelligence and the different emotional abilities. The positive relationships between self-directed learning and the different student learning outcomes and emotional abilities were discussed.

1. Introduction

With the high speed growth of knowledge and information as well as the continuous invention and widening access of communication technology, society is changing in a much rapid rate than before. The cultivation for the capacity of self-directed learning, which is regarded as a survival skill in response to the rapid change of modern society, is therefore identified as one of the major educational aims in many countries, including Hong Kong, Japan, Korea, Singapore, Taiwan, Thailand, etc. (Mok et al., 2007; OECD, 2000).

In Hong Kong, for example, the New Senior Secondary Curriculum, which has come into play in 2009, was developed based on the guiding principle of developing "students' overall capacities for self-directed, lifelong learning" (Education and Manpower Bureau, 2005, p. 20). Instead of the use of instruction-style of learning, schools are encouraged to adopt cross-curricular and inquiry-based approaches to learning so that students are able to learn through actual participation, exploration and research. The curriculum of Liberal Studies is implemented with the purpose of promoting students' self learning. Indeed, self-directed learning is also greatly fostered in the higher education. For example, most universities in the UK and Australia are fostering self-directed learning or other similar concepts such as autonomous learning and lifelong learning by specifying this element as the generic attribute of graduates (Chemers, Hu, & Garcia, 2001; Macaskill & Denovan, 2013). The idea of self-directed learning is greatly fostered in the higher education as its emphasis on personal autonomy, personal responsibility and personal growth embodies the fundamental principles of higher education (Wilcox, 1996).

1.1. Definitions of self-directed learning

There are varied definitions of self-directed learning in the literature with Knowles's definition as the most frequently adopted (O'Shea, 2003). According to Knowles (1975), self-directed learning is "a process in which individuals take the initiative, with or without the help of others, in diagnosing their learning needs, formulating learning goals, identifying human and material resources for learning, choosing and implementing appropriate learning strategies and evaluating learning outcomes" (p. 18). This conception of self-directed learning as a process focuses on the skills and abilities needed by an individual to engage in the learning process, e.g., skills in setting goals for learning, identifying learning resources and evaluating the learning outcomes.

The process perspective of self-directed learning, however, was criticized, as the possession of knowledge and skills cannot ensure an individual's persistence in learning throughout life (Little, 2000; Macaskill & Denovan, 2013; Oddi, 1987). Persistence is a psychological variable, which is not necessarily dependent upon skills. Self-directed learning is not so much about methods of learning, but about developing capabilities in students to enable them to become autonomous learners (Macaskill & Denovan, 2013). The personality perspective

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thus emerged, which views self-directed learning as a personal attribute or characteristic of learners. For example, Guglielmino (1997) described a highly self-directed learner as "one who exhibits initiative, independence, and persistence in learning…one who enjoys learning and has a tendency to be goal oriented" (p. 73)

1.2. Measurements of self-directed learning

The Self-Directed Learning Readiness Scale (SDLRS) (Guglielmino, 1977, 1997) and the Oddi Continuing Learning Inventory (OCLI) (Oddi, 1986) are the two leading instruments that are developed based on the personality perspective of self-directed learning (Harvey, Rothman, & Frecker, 2006; Svedberg, 2010). For the SDLRS, it consists of 58 items and the scale measures an individual's readiness for self-directed learning. The scale is constructed by eight factors, including: (i) openness to learning opportunities; (ii) self-concept as an effective learner; (iii) initiative and independence in learning; (iv) informed acceptance of responsibility for one's own learning; (v) love of learning; (vi) creativity; (vii) future orientation; and (viii) the ability to use basic study and problem-solving skills. While for the OCLI, it consists of 24 items that measure three major characteristics of self-directed continuous learner: (i) proactive versus reactive drive (initiating and persisting in learning without external reinforcement); (ii) cognitive openness versus defensiveness (being adaptable, flexible and receptive to change as well as willingness to take risks); and (iii) commitment to learning versus apathy or aversion to learn (an active pursuit of learning and enjoy learning for its own sake).

Despite the popularity of the two instruments, they are not without criticisms. For the SDLRS, the major criticism of the scale was its validity. For example, Field (1989) criticized the scale as having a weak conceptual foundation. Instead of measuring self-directed learning readiness, it only measures the homogenous construct of love and enthusiasm in learning. A similar criticism was raised by Bonham (1991). As to the OCLI, it was criticized by Landers (1990) as possessing weak internal reliability. While all of the eight factors of the SDLRS were found to be correlated significantly with its total score, only two of the three factors of the OCLI were found to be so, which led Landers to conclude that the SDLRS was a more preferable instrument than the OCLI in measuring self-directed learning. It might also explain why the SDLRS is more popular than the OCLI (Merriam, Caffarella, & Baumgartner, 2007).

1.3. The Self-Directed Learning Scale (SDLS)

The Self-Directed Learning Scale (SDLS), which consists of 10 items, is another instrument that is developed based on the personality perspective. As pointed out by Lounsbury et al. (2009), the merit of the SDLS is its brevity, which allows researchers to measure self-directed learning in a relatively efficient manner. The SDLS was developed by Lounsbury and Gibson (2006) based on Brockett's (1983) conceptualization of self-directed learning, i.e., self-directed learning is "a disposition to engage in learning activities where the individual takes personal responsibility for developing and carrying out learning endeavors in an autonomous manner without being prompted or guided by other people, such as teachers, parents or peers" (p.16). For Brockett, he believes that personal responsibility is the cornerstone of self-directed learning as only by accepting responsibility for one's own learning can it be possible to lead to a proactive approach in the learning process. The conceptualization of self-directed learning as a personality trait is, indeed, reflecting an individual's preference to be in charge of their own learning process; the ability to conceptualize, plan, implement, and evaluate their learning experience; as well as the disposition to be goal-oriented and to work independently or in group settings with little guidance. Since self-directed learning is conceived as a personality trait rather than an instructional method, it is relatively enduring over time and across situations for individuals. Besides, it is an attribute that exists to some degree in every person and can be represented on a continuum ranging from low to high. The SDLS is designed to be applicable for youth and adult learners for measuring self-directed learning in academic and organizational settings, with suitable adaptations required for the latter. Examples of the items include: 'I am very good at finding out answers on my own for things that the teacher does not explain in class', 'I am good at findings the right resources to help me do well in school' and 'If there is something I need to learn, I find a way to do so right away'.

The SDLS is a uni-dimensional scale with sound psychometric properties reported (Lounsbury, Levy, Park, Gibson, & Smith, 2009). Firstly, the one-factor structure of the scale was confirmed by the confirmatory factor analysis. Secondly, the scale was internally consistent with coefficient alpha ranged from 0.84 to 0.87 for the middle and high school as well as the college samples. Thirdly, there were multiple forms of evidence to support its construct validity. For instance, its concurrent validity was established through its high correlation with the Self-Directed Learning Readiness Scale (SDLRS) [$r(34) = 0.82$, $p < 0.01$]. Besides, its criterion validity was evidenced by its association with the cumulative GPA for not only the college samples, but also the middle and high school samples, which ranged from $r = 0.20$ to 0.40, $p < 0.01$. Furthermore, the scale was found to be correlated with a number of related personality traits, such as the Big Five Personality Traits of Openness to experience, Conscientiousness and Neuroticism and Optimism, as well as life and college satisfaction.

1.4. Relationships with personality traits, academic performance and emotional abilities

As explained by Lounsbury et al. (2009), there is a logical relationship between self-directed learning and the personality traits. For example, self-directed learner would be expected to be oriented towards 'Openness to Experience' as learning of new material is a main form of expression of openness to experience (Lounsbury & Gibson, 2006). Besides, since self-directed learning requires one to be self-discipline and goal-directed, it is understandable for it to be positively correlated with Conscientiousness, an individual's tendency to be reliable, persistence and organized.

With respect to the relationship between self-directed learning and academic achievement, individuals who are more engaged in self-directed learning are expected to learn more in courses and hence, attain higher GPA (Lounsbury et al., 2009). Having said that, findings on the relationship between the two are rather mixed (Chou, 2013). While affirmative relationship was reported (Cazan & Schiopca, 2014; Corbel, 2003; Hsu & Shiue, 2005), there are studies that reported a non-significant relationship between the two (Doherty, 2000; Pachnowski & Jurczyk, 2000).

Also, it is interesting to note that self-directed learning was found to be positively correlated with the traits of Emotional Stability and Optimism, but negatively with Neuroticism and Tension. The emotional relationships were speculated by Lounsbury et al. (2009) as related to the higher GPA and other beneficial outcomes resulting from the higher levels of self-directed learning, which lead individuals to be less worried and have higher levels of life and college satisfaction.

Indeed, as explained by Rager (2009), there is a role for emotions to play in the process of learning, including self-directed learning. "Emotion is the foundation of learning" (Zull, 2006, p. 7). It affects what is learned and what is retained. It is emotions that make the learner to notice something and begin the learning process. Yet, emotion is a double-edged sword, with the ability to enhance or impede learning, which can be shown by the fact that our ability for higher order problem solving is diminished during periods of intense emotions (Wolfe, 2006). That said, the ability to manage emotions would be facilitative to self-directed learning.